Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of determining effects of a substance on at least one organ, comprising:

at least one of restoring and maintaining organ viability of the at least one organ;

analyzing the at least one organ to determine whether the at least one organ is suitable to be transplanted; and

based on a determination that the at least one organ is not suitable to be transplanted, further comprising:

perfusing the at least one organ with a first medical fluid to preserve the at least one organ;

contacting the at least one organ with at least one test substance; and

gathering data regarding at least one of the at least one organ, the at least one test substance, and interaction between the at least one organ and the at least one test substance.

2. (Previously Presented) The method of claim 1, wherein the contacting step includes perfusing the organ with a second medical fluid containing the test substance.

3. (Original) The method of claim 2, wherein the first and second medical fluids are the same.

4. (Original) The method of claim 2, wherein the first and second medical fluids are different.

5. (Original) The method of claim 1, wherein at least one of the at least one organ and an effluent from the organ is monitored by a sensor that senses characteristics of at least one of the effluent and the at least one organ.

6. (Original) The method of claim 5, further comprising generating data comprised of the sensed characteristics.

7. (Previously Presented) The method of claim 6, wherein the data are generated and displayed in real time, stored, transmitted to a remote site, transferred to a recording medium, or relayed to a microprocessor for assessment.

8. (Currently Amended) The method of claim 2, further comprising collecting the second medical fluid that has passed through the at least one organ from an organ bath and sensing characteristics of the collected medical fluid indicative of the interaction between the at least one organ and the test ~~substance.~~substance by a sensor.

9. (Original) The method of claim 2, wherein the test substance is a chemical compound.

10. (Original) The method of claim 2, wherein the test substance is at least one of natural and modified antibodies.

11. (Original) The method of claim 2, wherein the test substance is an immunotoxin.

12. (Original) The method of claim 2, wherein the second medical fluid is blood.

13. (Original) The method of claim 5, wherein the sensed characteristics relate to at least one of absorption, distribution, metabolism and excretion.

14. (Original) The method of claim 5, wherein the sensed characteristics relate to at least one of pharmacokinetics, pharmacodynamics and toxicity.

15. (Original) The method of claim 5, wherein the sensed characteristics relate to at least one of determining what the substance is doing to the at least one organ and what the at least one organ is doing to the substance.

16. (Currently Amended) A method of screening at least one organ, comprising:

at least one of restoring and maintaining organ viability of the at least one organ;

analyzing the at least one organ to determine whether the at least one organ is suitable to be transplanted; and

based on a determination that the at least one organ is not suitable to be transplanted, further comprising:

perfusing the at least one organ with a first medical fluid to preserve the organ;

contacting the at least one organ with at least one test substance; and

gathering data regarding at least one of the at least one organ, the at least one test substance, and interaction between the at least one organ and the at least one test substance,

wherein the at least one test substance is a bioactive agent.

17. (Canceled)

18. (Currently Amended) The method of claim 16, further comprising the steps of:

sensing fluid characteristics indicative of ~~organ~~ the organ viability by a sensor.

19.-20. (Canceled)

21. (Previously Presented) The method of claim 1, wherein the step of analyzing includes monitoring the at least one organ to obtain diagnostic data, generating the diagnostic

data of the at least one organ and analyzing the diagnostic data to determine whether the at least one organ is suitable to be transplanted.

22. (Currently Amended) The method of ~~claim 6~~claim 16, wherein the step of analyzing includes monitoring the at least one organ to obtain diagnostic data, generating the diagnostic data of the at least one organ and analyzing the diagnostic data to determine whether the at least one organ is suitable to be transplanted.

23. (Previously Presented) The method of claim 5, further comprising:

generating measurement data based on the sensed characteristics; and

comparing the measurement data to characteristics of the at least one test substance.

24. (Previously Presented) The method of claim 18, further comprising:

generating measurement data based on the sensed characteristics; and

comparing the measurement data to characteristics of the at least one test substance.

25. (Previously Presented) The method of claim 5, further comprising:

generating measurement data based on the sensed characteristics; and

comparing the measurement data to characteristics of a normal organ.

26. (Previously Presented) The method of claim 18, further comprising:

generating measurement data based on the sensed characteristics; and

comparing the measurement data to characteristics of a normal organ.

27. (New) The method of claim 1, wherein the step of at least one of restoring and maintaining the organ viability includes perfusing the organ with at least one medical fluid during at least one perfusion mode to at least one of restore and maintain pre-ischemia energy and enzyme levels of the organ.

28. (New) The method of claim 16, wherein the step of at least one of restoring and maintaining the organ viability includes perfusing the organ with at least one medical fluid during at least one perfusion mode to at least one of restore and maintain pre-ischemia energy and enzyme levels of the organ.